ATTACHMENT 9 – MEMO TO FILE: DR. JAN SVEJKOVSKY, OCEAN IMAGING CORP, MAY 12, 2008

NTSB
National Transportation Safety Board
490 L'Enfant Plaza, SW
Washington, DC 20594-0001
www.ntsb.gov

May 13, 2008

Memo to File

File: Cosco Busan Allision with San Francisco-Oakland Bay Bridge
NTSB No.: DCA08MM004

Re: Remote Aerial Oil Spill Sensing Technologies. Telephone Contact with Dr. Jan Svejkovsky, President, Ocean Imaging Corporation. Tel. 858-792-8529.

I was referred to Dr. Svejkovsky by Joseph Mullin (U.S. Department of the Interior MMS) in response to a question about the foul weather capability of the multispectral remote oil spill thickness sensor that is being developed by Ocean Imaging Corporation in connection with an ongoing MMS and California DFG/OSPR-funded project. [1]

On May 12, 2008, I contacted Dr. Svejkovsky to inquire whether the instrument that he is developing will be practical for use in oil spill detection in foggy/poor visibility conditions such as what was experienced during the initial response to the *Cosco Busan* oil spill on November 7, 2007. Dr. Svejkovsky informed me that the only technology that would be considered useful under such conditions is SLAR (side looking aerial radar) or SAR (synthetic aperture radar). SLAR/SAR are active sensor methods, in which a pulse is transmitted from an antenna array mounted on the exterior of an aircraft and detects the effect of oiling on capillary waves on the sea surface. Limitations of this method include the inability to detect oil slick thickness and certain wind speeds are required to generate capillary waves reflected by the radar. SLAR/SAR equipment is not portable, and therefore requires dedicated aircraft. Dr. Svejkovsky is not aware of any commercially operated SLAR/SAR equipment due to the extreme expense; however the Coast Guard may have such capability on some of their aircraft.

All other remote sensing methods, such as IR and UV, are considered passive systems in which radiation in the form of heat and light is measured by the instrument. Consequently, clouds and fog interfere with the ability of these methods to record data. The multispectral sensor that Dr. Svejkovsky is developing in conjunction with the MMS/OSPR project belongs to this second class of remote sensor (four-channel UV/near-IR and visual green/yellow wavelength detector) and therefore may not have been capable of generating any useful data with obscured visibility.

European nations bordering the North Sea have pooled their resources and currently operate dedicated aircraft with SLAR and IR/UV capability in combination with SAR equipped satellites. The North Sea remote oil spill sensing project has significantly larger funding and a much smaller coastal area of operation in comparison to that of the United States. In order to establish a comparable system, the United States would require a fleet of dedicated aircraft outfitted with these very expensive radar systems.

[1] U.S. Department of the Interior Minerals Management Service, Project Number 594, Development of a Portable Multispectral Sensor for Real-Time Oil Spill Thickness Mapping in Coastal and Offshore Waters. Principal Investigator: Dr. Jan Svejkovsky, Ocean Imaging Corporation, 201 Lomas Santa Fe Dr., Suite 370, Solana Beach, CA 92075 ; Co-Investigator: Judd Muskat, California Department of Fish and Game, Office of Oil Spill Prevention and Response, 1700 K Street, Sacramento, CA 95814.

At present, Dr. Svejkovsky knows of no SLAR/SAR equipment that is optimized for oil spill remote sensing in use in the United States.

Dr. Svejkovsky's initial research funded by OSPR, utilizing a 4-channel multispectral sensor instrument owned by Ocean Imaging, was successful in identifying oil on water and mapping results with GIS. The MMS subsequently requested Ocean Imaging to expand its research to the current project in which oil slick thickness mapping algorithms are being developed. This sensor technology is capable of identifying oil thicknesses beyond the 1-2 millimeter range, which is considered to be a considerably heavy oil slick thickness. But rather than providing absolute thickness measurements, Dr. Svejkovsky's instrument is designed to generally classify oil slick thicknesses, yielding accurate enough data to efficiently guide spill response operations. The goal of current research is to develop within the next year an affordable less sophisticated system, in which multiple sensor units could be staged throughout the U.S. and deployed in aircraft of opportunity.

Testing of the multispectral sensor included the successful collection of imagery during the second day of the *Cosco Busan* oil spill at OSPR's request. Although additional testing of the experimental equipment is scheduled, Dr. Svejkovsky is confident that an operational remote oil spill sensor exists at this time. The equipment stands ready to be deployed on the next oil spill incident in the California area.

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